

FIG - 1
PRIOR ART

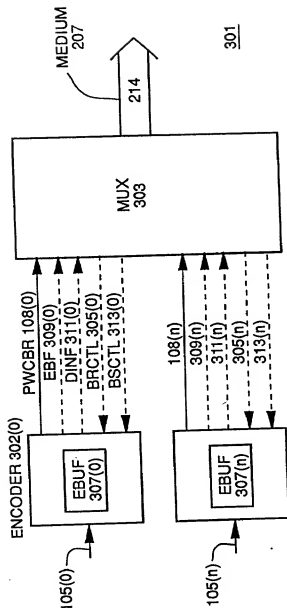
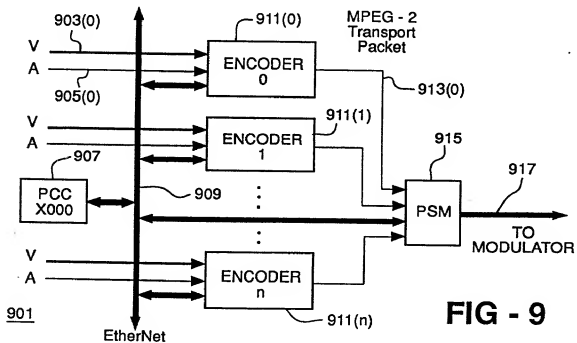
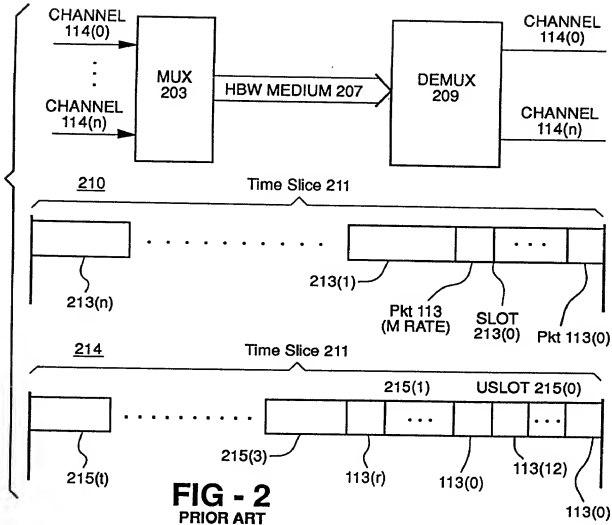
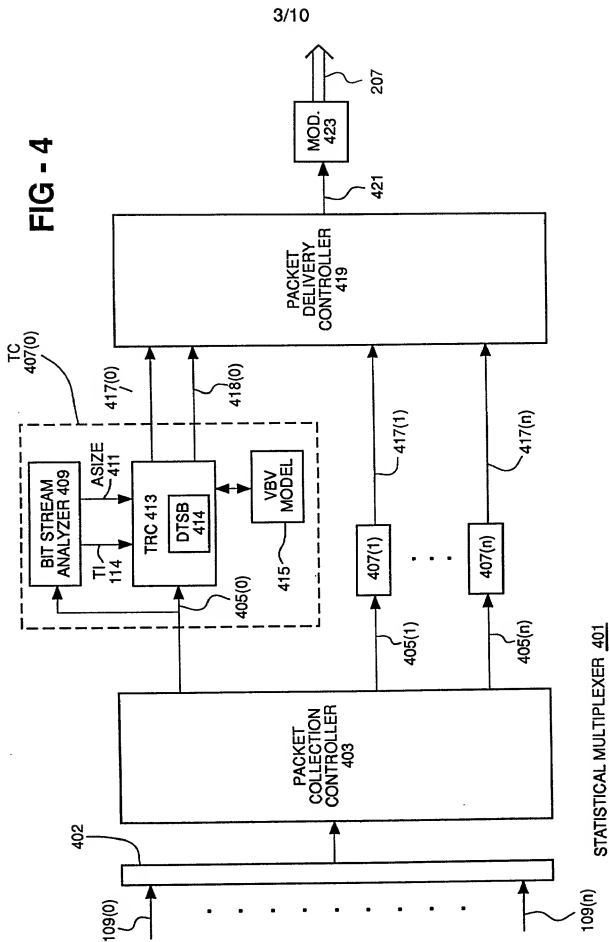


FIG - 3
PRIOR ART





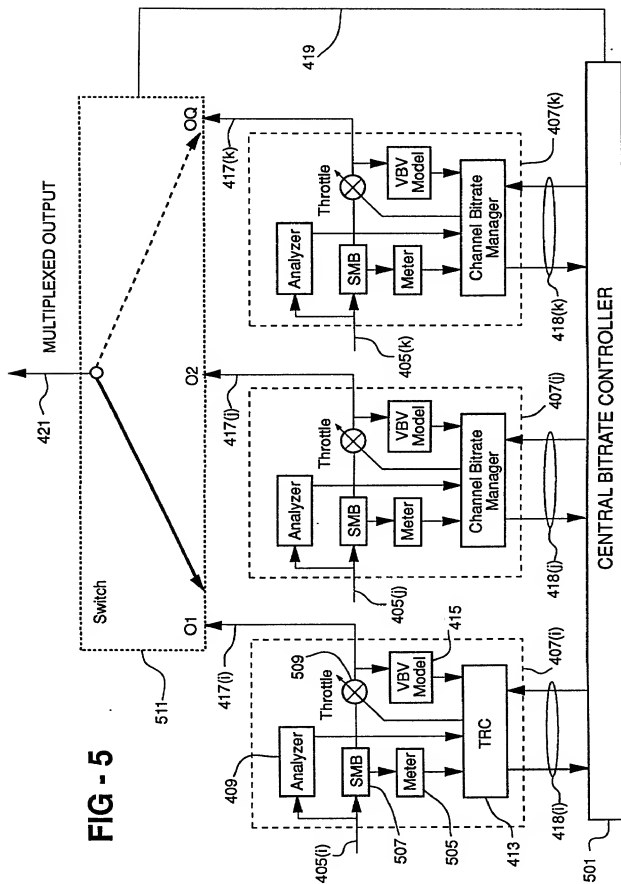


FIG - 6

```

/* Initialization of parameters */
q = 0;
r = 0;
pic_cnt_VBV = 0;
pic_residual_bits = packet_cnt(0)*188; /* Initial condition when no bit has left SMB */
Fvbv(0) = 0;

for (m = 1;; m++) {
    pic_residual_bits -= R(m)*T_c; /* m is the index of each channel transmission time T_c */
    /* update the pic_residual_bits parameter in SMB */
    /* Rm is the bitrate for the mth Tc period */

    /* VBv fullness update */
    if (t < DTS(t)) {
        /* The picture r has not been removed from VBv. Here the t is the real
        time derived from PCR */
        Fvbv(m) += R(m) * T_c;
    }
    else {
        /* picture r has been completely removed from VBv */
        pic_cnt_VBV--;
        /* The number of coded picture in VBv should be reduced by 1 */
        Fvbv(m) += R(m) * T_c - packet_cnt(r)*188;
        r = (r + 1) % NPPmax;
    }
    /* Note: the VBv fullness calculated in this way has the TS and PES overhead.
    It means the actual fullness of decoder's bit buffer is less than VBv fullness.
    We don't intend to exclude such overhead since it is rather tedious. Instead
    we use this overhead as an extra small buffer at the top of decoder's bit
    buffer to guarantee there is no overflow */

    if (pic_residual_bits < 0) {
        /* last coded picture has been completely moved from
        SMB to VBv */
        /* Update the maximum DTS value and picture counter information in VBv */
        DTS_Vmax = DTS(q);
        /* The maximum DTS value in VBv */
        pic_cnt_VBV++;
        /* Number of complete coded picture in VBv */

        /* Update parameters for SMB */
        q = (q + 1) % NPP;
        /* next q value q has the same value range as NPP */
        pic_residual_bits += packet_cnt(q)*188; /* add in the bits amount for the new picture */
    }
}

```

FIG - 7

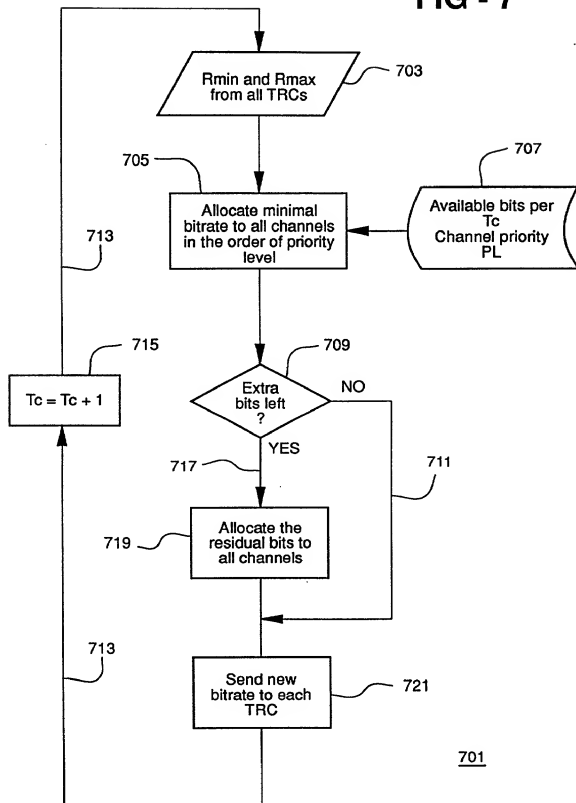


FIG - 8

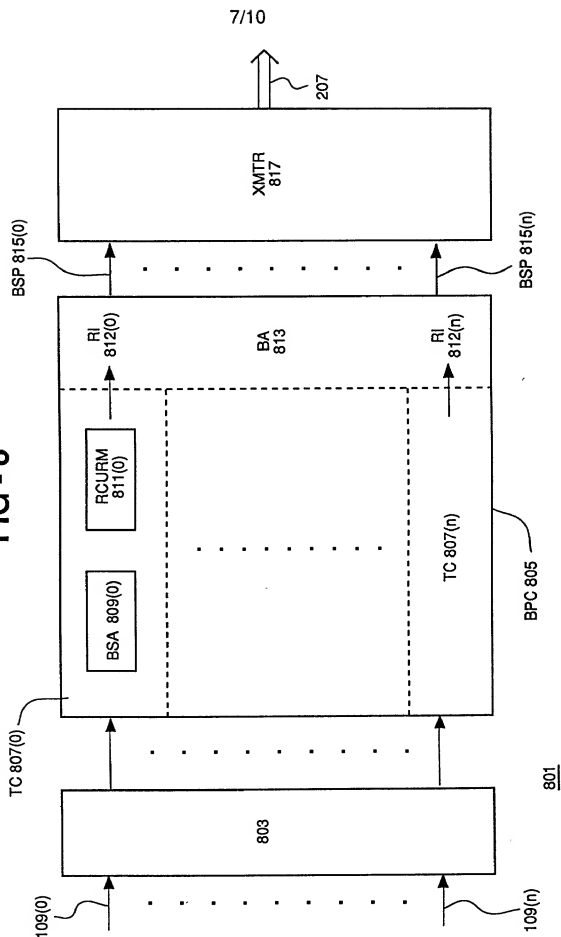


FIG - 11

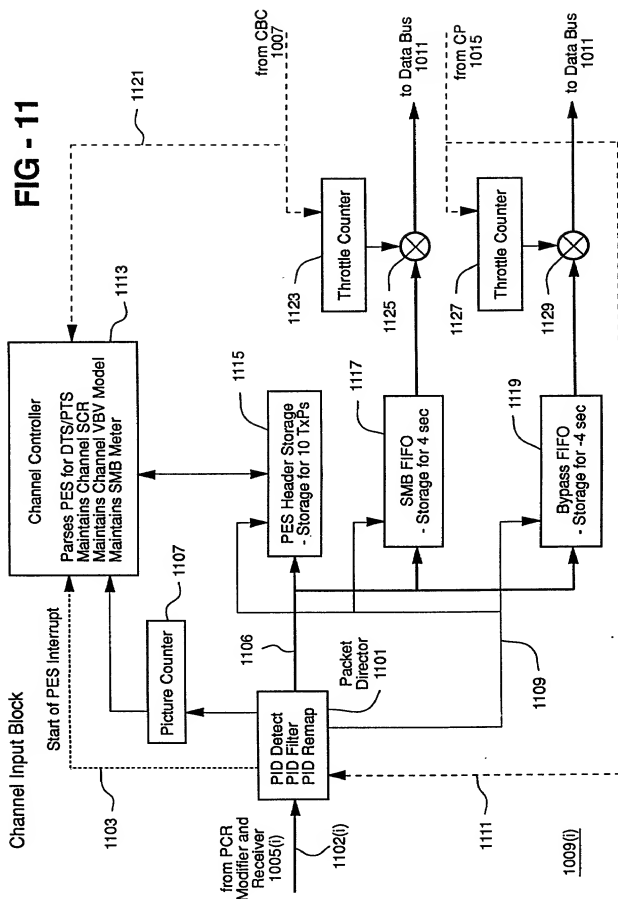
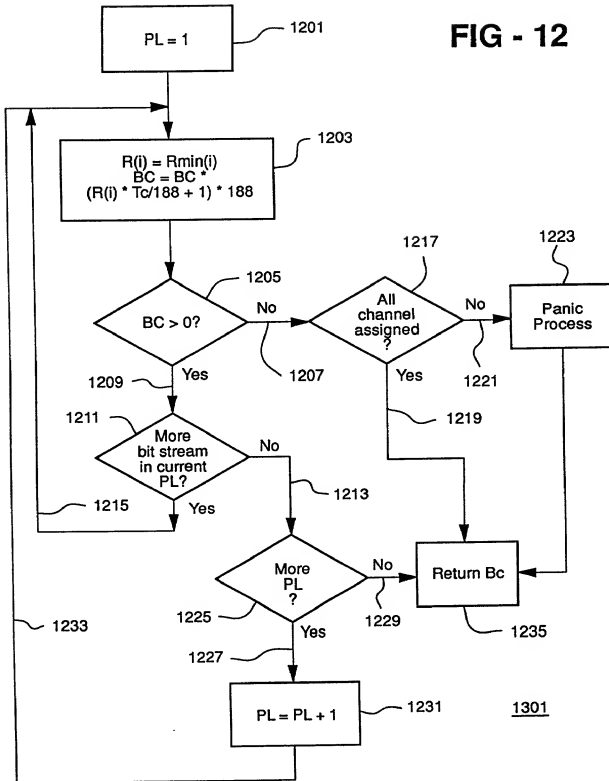


FIG - 12

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